WHAT IS CLAIMED IS:

1. In a signal processor for processing at least two measured signals M_1 and M_2 each containing a primary signal portion S and a secondary signal portion N, said signals M_1 and M_2 having the following relationship:

$$M_1 = S_1 + N_1$$
$$M_2 = S_2 + N_2$$

where S_1 and S_2, and N_1 and N_2 are related by:

$$S_1 \approx r_a S_2$$
$$N_1 \approx r_v N_2$$

and where r_a and r_v are coefficients, a method comprising the steps of:

determining a value for a coefficient c, such that an error value e, given by the relation $e = S_1 - (cM_1 - M_2)$ is partially minimized; and

using said coefficient c in a waveform scrubber to remove some of the signal N_1 from the measured signal M_1 and thereby producing an approximation A_1 to said signal S_1, where $A_1 = cM_1 - M_2$.

2. The method of Claim 1, where A_1, M_1 and M_2 are frequency domain signals.

3. The method of Claim 1, further comprising the step of displaying the resulting clean signal on a display.

4. The method of Claim 1, wherein said first and second signals are physiological signals, further comprising the step of processing said clean signal to determine a physiological parameter from said first and second measured signals.

5. The method of Claim 4, wherein said physiological parameter is arterial oxygen saturation.

6. The method of Claim 4, wherein said physiological parameter is an ECG signal.

7. The method of Claim 2, wherein the first portion of said measured signals is indicative of a heart plethysmograph, further comprising the step of calculating the pulse rate.

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8. A physiological monitor comprising:

a first input configured to receive a first measured signal M_1 having a primary portion, S_1, and a secondary portion N_1;

a second input configured to received a second measured signal M_2 having a primary portion S_2 and a secondary portion N_2, said first and said second measured signals M_1 and M_2 being in accordance with the following relationship:

$$M_1 = S_1 + N_1$$
$$M_2 = S_2 + N_2$$

where S_1 and S_2, and N_1 and N_2 are related by:

$$S_1 \approx r_a S_2$$
$$N_1 \approx r_v N_2$$

and where r_a and r_v are coefficients;

a first signal processor, said first signal processor configured to compute said r_a and said r_v using a transformed representation of said signal M_1 and a transformed representation of said signal M_2;

a waveform scrubber having a first input configured to receive said first measured signal, and having a second input to receive said second measured signal, said waveform scrubber providing an output corresponding to an approximation of S_1;

9. The physiological monitor of Claim 8, further comprising a second signal processor, said second signal processor configured to compute selected blood constituents from said first and second measured signals.

10. The physiological monitor of Claim 9, wherein said selected blood constituent is arterial blood oxygen saturation.

11. The physiological monitor of Claim 9, wherein said selected blood constituent is venous blood oxygen saturation.

12. The physiological monitor of Claim 9, wherein said selected blood constituent is carbon monoxide.

13. The physiological monitor of Claim 8, wherein said plurality of possible values correspond to a physiological concentration.

14. The physiological monitor of Claim 8, wherein said first signal processor comprises a neural network.

15. A physiological monitor attached to a living being having a heart beating at an unknown pulserate, said monitor comprising:

a detector responsive to physiological properties relating to heartbeats, said detector producing a detector output waveform;

a signal processor operatively coupled to said detector, said signal processor receiving said detector output waveform, said signal processor configured to:

transform said detector output waveform into a spectral domain waveform;

identify a series of spectral peaks and peak frequencies corresponding to said spectral peaks in said spectral domain waveform; and

apply a plurality of rules to said spectral peaks and said peak frequencies in order to determine an estimate for said pulserate.

16. The physiological monitor of Claim 15, wherein said signal processor comprises a neural network.

17. In a physiological monitor attached to a living organism, said organism having a heart beating at an unknown pulserate, said monitor having a detector responsive to physiological properties relating to heartbeats, said detector producing a detector output waveform, a method comprising the steps of:

transforming said detector output waveform into a spectral domain waveform;

identifying a series of spectral peaks and peak frequencies corresponding to said spectral peaks in said spectral domain waveform; and

applying a plurality of rules to said spectral peaks and said peak frequencies in order to determine an estimate for said pulserate.

18. A physiological monitor attached to a living organism, said organism comprising a heart beating at an unknown pulserate, said monitor comprising:

a detector responsive to physiological properties relating to said heartbeats, said detector producing a detector output waveform;

a signal processor operatively coupled to said detector, said signal processor receiving said detector output waveform, said signal processor configured to:

perform a first transform to transform said detector output waveform into a waveform in a first transform domain;

perform a second transform, to transform said waveform in said first transform domain into a waveform in a second transform domain;

search said waveform in said second transform domain for a largest spectral peak and a first frequency corresponding to said largest spectral peak; and

compute an estimate of said unknown pulserate from said first frequency.

19. The physiological monitor of Claim 18, wherein said first transform comprises a forward Fourier transform.

20. The physiological monitor of Claim 18, wherein said second transform comprises a Fourier transform into a spectral domain.

21. The physiological monitor of Claim 20, wherein said second transform further comprises a 1/x mapping of the coordinates in said spectral domain.

22. The physiological monitor of Claim 18, wherein said first transform is a Chirp-Z transform into a spectral domain.

23. The physiological monitor of Claim 18, wherein said second transform is a Chirp-Z transform into a spectral domain.

24. The physiological monitor of Claim 23, wherein said second transform further comprises a 1/x mapping of the coordinates in said spectral domain.

25. The physiological monitor of Claim 18, wherein said first transform is a transform into a spectral domain.

26. The physiological monitor of Claim 25, wherein said second transform is a transform into a spectral domain.

27. The physiological monitor of Claim 26, wherein said second transform further comprises a 1/x mapping of the coordinates in said spectral domain.

28. The physiological monitor of Claim 27, wherein said first transform further comprises performing an absolute value operation on said waveform in said first transform domain.

29. The physiological monitor of Claim 28, wherein said signal processor is further configured to:

search said waveform in said first transform domain for a highest spectral peak and a second frequency corresponding to said highest spectral peak; and

compute said estimate of said unknown pulserate from said second frequency if said first frequency is above a threshold frequency

30. In a physiological monitor attached to a living organism, said organism comprising a heart beating at an unknown pulserate, said monitor having a detector responsive to physiological properties relating to said heartbeats, said detector producing a detector output waveform, a method comprising the steps of:

performing a first transform to transform said detector output waveform into a waveform in a first transform domain;

performing a second transform, to transform said waveform in said first transform domain into a waveform in a second transform domain;

searching said waveform in said second transform domain for a largest spectral peak and a first frequency corresponding to said largest spectral peak; and

computing an estimate of said unknown pulserate from said first frequency.

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